UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,936	08/28/2003	Kikuo Hayashi	991334	6093

38834 7590 11/02/2005

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP
1250 CONNECTICUT AVENUE, NW
SUITE 700
WASHINGTON, DC 20036

EXAMINER	
BROWN JR, NATHAN H	
ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/649,936	HAYASHI ET AL.	
	Examiner	Art Unit	
	Nathan H. Brown, Jr.	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *(3)* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *August 5, 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-128* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-128* is/are rejected.

7)☒ Claim(s) *46,59,79 and 114* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner's Detailed Office Action

1. This Office is responsive to application 10/649936, filed August, 5, 2005.

2. Claims 29-128 have been examined. Applicant's arguments with respect to claims 29-61, 62-94, 95-127, and 128 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claims 46, 79, and 114 are objected to because of the following informalities: "...to identify a grouping the segments that represents a component..." is not grammatical. Appropriate correction is required.

4. Claims 59 are objected to because of the following informalities: "Claim..." appears at the end of the claim and is either the start of a truncated sentence or a typo. Examiner assumes typo and eliminates it below. Appropriate correction is required.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

the invention as disclosed in claims 29-61, 62-94, 95-127, and 128 is directed to non-statutory subject matter: mathematical abstraction. None of the claims is limited to practical applications in the technological arts. Examiner finds that Applicant's specification of a genetic algorithm to map one data structure (parent profile) to another data structure (offspring profile) specifies, simply, an abstract mapping (or an algorithm achieving such a mapping) of one design to another design. This is non-statutory as no post solution activity is disclosed.

Claim Rejections - 35 USC 112,1

6. The following is a quotation of the first paragraph of 35 U.S.C. 1 12:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 29-61, 62-94, 95-127, and 128 are rejected under 35 USC 1 12, first paragraph because current case law and, accordingly, the MPEP:

> ("the how to use prong of section 1 12 incorporates as a matter of law the requirement of 35 U.S.C. 101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of

> fact to satisfy 35 U.S.C. §101, then the application also fails as a matter of law to enable one of ordinary skill in the ad to use the invention under 35 U.S.C. §112."); In re Kirk, 376 F.2d 936, 942, 153 USPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with §112 requires a description of how to use presently useful inventions, **othewise an applicant would anomalously be required to teach how to use a useless Invention.**")see, MPEP 2107.01 (1V, quoting In re Kirk (emphasis added)).

require such a rejection if a 101 rejection is given, where the Applicant has not in fact, disclosed the practical application for the invention. As a matter of law there is no way Applicant could have disclosed how to practice the undisclosed practical application.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 29-35, 38, 40, 44-61, 62-68, 71, 73, 77-101, 107-108, 112-125, and 128 are rejected under 35 U.S.C. 102(b) as being anticipated by *Bentley et al.*, "Conceptual Evolutionary Design by a Genetic Algorithm", 1996.

Regarding claims 29, 62, 95, and 128. (Currently Amended) *Bentley et al.* describe a genetic design method executable on a computer comprising: selecting a parent profile representing an

outline for designs the outline delineating a shape of a physical structure (*see* pp. 3-4, §4.1, *Examiner interprets "a number of non-overlapping primitive" to be a profile.*); dividing the parent profile into segments, each of the segments having at least one dimensional characteristic (*see* pp. 3-5, §4.1 and §4.2, *Examiner interprets "primitive" to be a segment consisting of "nine definition parameters to specify its 3D position, width, height, depth, and orientation of its clipping plane.", i.e. the segment consist of nine numeric parameters: x, y, z, w, h, d, A, B, C, where A, B, and C are coordinates for the vector normal to the clipping plane.*), and evolving the parent profile using a genetic algorithm to produce an offspring profile with a variation in the at least one dimensional characteristic of at least one of the segments (*see* pp. 8-10, §5.3, *Examiner notes that each prism type is based on a variation of at least one parameter of a primitive (e.g., A).*), the offspring profile representing a new outline for the design the new outline delineating a new shape of the physical structure (*see* pp. 8-10, §5.3, *Examiner notes that each prism type delineates a shape of a possible physical structure.). (Examiner further notes that the capability to select, display, and edit some subset of a set of designs and design primitives is inherent in any design system.*)

Regarding claims 30, 63, and 96. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein the segments of the profiles represent curves and lines of contours of externally visible components of the structure (*see* p. 3, Fig. 1, *Examiner notes that a primitive represents curves and lines of contours in the 2D approximation.*).

Regarding claims 31, 64, and 97. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein at least one of the profiles includes at least one

dimensional characteristic pertaining to the overall profile (*see* p. 6, Fig. 3, *Examiner notes that orientation of the clipping plane is a characteristic pertaining to the input and output light characteristics of the 2-D prism design.*).

Regarding claims 32, 65, and 98. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein at least one of the profiles includes different levels of detail (*see* p. 5, col. 1, lines 11-14, *Examiner notes that orientation of the clipping plane is a different level of detail than the prism position.*).

Regarding claims 33, 66, and 99. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein at least one of the profiles includes a grouping of the segments that represents a component of the structure (*see* p. 8, Fig. 7, *Examiner notes that each prism design consists of two primitives which represent component prisms in a multi-prism design.*).

Regarding claims 34, 67, and 100. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein at least one of the profiles includes a grouping of the segments that represents a component of the structure, the grouping including at least one dimensional characteristic pertaining to the grouping (*see* p. 9, Fig. 10, *Examiner notes that each prism design in the set has a grouping of segments which include a depth (as they are all 3-D).*).

Regarding claims 35, 68, and 101. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein at least one of the profiles includes at least two

groupings of the segments that respectively represent at least two components of the structure, the profile including a relational parameter pertaining to a relationship between the at least two groupings (*see* p. 10, Fig. 12, *Examiner notes that each prism design in the set has a grouping of two segments which represent two component prisms having a relational parameter of equal angles of refraction.*).

Regarding claims 38 and 71. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising displaying at least one of the profiles (*see* p. 9, col. 1, lines 1-8).

Regarding claims 40, 73, and 107. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising displaying the grouping (*see* p. 10, Figs. 12-13, *Examiner notes that each prism design in the figures has a grouping of multiple segments.*).

Regarding claims 44, 77, and 112. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising modifying the at least one dimensional characteristic for at least one of the segments (*see* p. 9, Fig. 8, "Using a single primitive of the representation, a variety of differently oriented prisms were successfully evolved,...".).

Regarding claims 45, 78, and 113. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising modifying the at least one dimensional characteristic pertaining to the overall profile (*see* p. 10, col. 1, §*RHOMBOID PRISM* Fig. 12, "...parameters specifying depth and position on the Z-axis were simply initialized[sic] with a set value instead of a random value,...", *Examiner notes that depth pertains to whether the overall profile is 2-D or 3-D.*).

Regarding claims 46, 79, and 114. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising modifying at least one of the profiles to identify a grouping the segments that represents a component of the structure (*see* p. 9, col. 2, §*DEROTATING PRISMS*, Fig. 11, *Examiner assumes that the claim means: modifying at least one of the profiles to identify a grouping --of-- segments that represents a component of the structure, i.e., evolving new components (i.e., identifying a new grouping of segments) by evolving the design. Examiner notes that in evolving the profile of a derotating prism to turn an image upside down, the GA was able to exploit a loop-hole in the design specification and satisfy the requirement by generating a ('cheat') segment grouping forming an unusual 'K' prism component (Fig. 11 (top)) to turn the image upside down.*).

Regarding claims 47, 80, and 115. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising: modifying at least one of the profiles to identify a grouping of the segments that represents a component of the structure (*see* above); and specifying at least one dimensional characteristic pertaining to the grouping (*Examiner*

asserts that modifying at least one of the profiles inherently forces a modification of at least one dimensional characteristic pertaining to the grouping of segments since a profile consists of segments (see above) which contain dimensional (e.g. height) information.).

Regarding claims 48 and 81. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising modifying the dimensional characteristic pertaining to the grouping (*see* p. 4, col. 1, §4.2, "By fixing all parameters specifying depth, two-dimensional designs can be created in addition to three dimensional designs.", *Examiner asserts that the depth of each segment is a characteristic pertaining to the grouping of segments (i.e., whether the grouping is 2-D or 3-D).*).

Regarding claims 49, 82, and 116. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising: modifying at least one of the profiles to identify at least two groupings of the segments that respectively represent at least two components of the structure (*see* p. 11, §5.4, Figs. 14-15, *Examiner notes that the GA evolved the profile of randomly positioned right-angle prisms (Fig. 14) into an abbe prism and a porro prism (Fig. 15) which are capable of being combined into various optical structures.*); and specifying a relational parameter pertaining to a relationship between the at least two groupings (*see* p. 11, Fig. 14, §5.4, *Examiner asserts that relative position is a relational parameter pertaining to a relationship between the at least two groupings.*).

Regarding claims 50 and 83. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising modifying the relational parameter pertaining to the relationship between the at least two groupings (*see* above).

Regarding claims 51, 84, and 117. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, further comprising modifying the relationship between the at least two segments (*see* p. 6, col. 1-2, *MODULE 3: UNFRAGMENTED*, "This criterion is implemented as a soft constraint, with fragmented designs being penalised very heavily." *Examiner asserts that fragmentation is a relationship between at least two segments, which is modified by the GA to avoid design penalty.*).

Regarding claims 52, 85, and 118. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein said evolving isolates at least one of the segments of the parent profile from variation (*see* p. 4, col. 1, §4.2, "By fixing all parameters specifying depth, two-dimensional designs can be created...").

Regarding claims 53, 86, and 119. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein said evolving isolates the at least one dimensional characteristic pertaining to the overall profile from variation (*see* above).

Regarding claims 54, 87, and 120. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein the grouping is part of the parent profile

(*Examiner notes that a parent profile can have more than one segment and thus a grouping (see figures).*), and wherein said evolving isolates the grouping from variation (*Examiner asserts that since depth parameters can be fixed to restrict variation of a design to two dimensions (see above), all of the segment groupings in a design can be isolated from variation in a third or higher dimension.*)

Regarding claims 55, 88, and 121. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein said evolving evolves only the segments selected by a user (*see* p. 4, col. 1, §4.2, *Examiner notes that all executions of the GA involve a user selected starting profile which consists, therefore, of user selected segments.*).

Regarding claims 56, 89, and 122. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein the parent profile includes at least two groupings of the segments that respectively represent at least two components of the structure (*see* p. 11, col. 1, §5.4, Fig. 14, *Examiner interprets all prisms in the starting profile to be components.*), and wherein said evolving evolves only the segments of the grouping selected by the user (*see* above).

Regarding claims 57, 90, and 123. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein the grouping is part of the parent profile (*Examiner notes that a grouping of segments is inherently part of any profile.*), and wherein said

evolving evolves the at least one dimensional characteristic pertaining to the grouping (*see* p. 11, col. 1, §5.4, "No genes are fixed, allowing the system to determine not only the positions of the components, but also optimize the components themselves if required.", *Examiner notes that allowing the system to determine positions of the components involves evolving at least one dimensional characteristic (e.g., x) pertaining to the grouping of segments representing prisms.*).

Regarding claims 58, 91, and 124. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in claim 35, wherein the at least two groupings are part of the parent profile (*see* above), and wherein said evolving evolves the relational parameter pertaining to the relationship between the at least two groupings (*see* above).

Regarding claims 59, 92, and 125. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein the relationship between the at least two segments is part of the parent profile (*Examiner asserts that if a parent profile contains at least two segments, it contains at least two normals for clipping planes—one for each segment—it therefore contains a relationship between at least two segments.*), and wherein said evolving evolves the relationship between the at least two segments (*Examiner asserts that if evolving varies the normal of the clipping planes of either segment, evolving evolves a relationship between at least two segments.*).

Regarding claims 60, 93, and 126. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein said evolving accounts for a user

preference to keep at least one of the segments (*see* p. 5, col. 2, *MODULE 1: LIMITS UPON SIZE, Examiner notes that evolution under the user preferred, 'soft constraint' of limits upon size, keeps both segments in Fig. 2 while varying their size.*).

Regarding claims 61, 94, and 127. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein said evolving accounts for a user preference to keep the grouping (*see* p. 5, col. 2, *MODULE 1: LIMITS UPON SIZE, Examiner notes that evolution under the user preferred, 'soft constraint' of limits upon size, keeps the segment grouping in Fig. 2 while varying its size.*).

10. Claims 104 and 105 are rejected under 35 U.S.C. 102(b) as being anticipated by *Jackson et al.*, "The Use of Animation to Explain Genetic Algorithms", 1997.

Regarding claim 104. (New) *Jackson et al.* describe a graphical user interface as claimed in the parent claim, wherein the display displays the offspring profiles (*see*, p. 246, col. 2, lines 1-5 and Fig. 5).

Regarding claim 105. (New) *Jackson et al.* describe a graphical user interface as claimed in the parent claim, wherein the display simultaneously displays the parent and offspring profiles (*see*, p. 246, col. 2, lines 1-5 and Fig. 5).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim claims 36, 69, and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Jones et al.*, "Development and Validation of a Genetic Algorithm for Flexible Docking", 1997.

Regarding claims 36, 69, and 102. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim, wherein at least one of the profiles includes a relationship between at least two of the segments. *Bentley et al.* do not describe the relationship including a radius parameter. However, *Jones et al.* do describe the relationship including a radius parameter (*see* p. 739, para. "Initialisation[sic] of the protein and of the ligand"). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Jones et al.* to specify component position constraints simply.

13. Claim claims 37, 70, and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Renner*, "Geometric Optimization with Genetic Algorithms", 1998.

Regarding claims 37, 70, and 103. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim. *Bentley et al.* do not describe profiles of an automobile. However, *Renner* describes optimization of an automobile body using a genetic design method (*see* last para.). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to use the variant of constructive solid geometry described in *Bentley et al.* to perform automobile body optimization with genetic algorithms as *Renner* describes for the purpose of handling the complex goal functions with realistic effort (*see* abstract).

14. Claim claims 39, 72, and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Faccenda et al.*, "A Combined Simulation/Optimization Approach To Process Plant Design", 1992.

Regarding claims 39, 72, and 106. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim. *Bentley et al.* do not describe displaying at least one of the profiles at one of the different levels of detail. However, *Faccenda et al.* do describe displaying at least one of the profiles at one of the different levels of detail (*see* p. 1260, col. 2, last para.). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* and *Faccenda et al.* to provide visual

representation of profiles at different levels of detail for the purpose of determining if the optimal solution is valid for the combination (*see* p. 1260, §5.3, first para.).

16. Claims 41-42, 74-75, 108, and 109-110 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Bedwell et al.*, "Artificial Evolution of Algebraic Surfaces", 1999.

Regarding claims 41, 74, and 109. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim. *Bentley et al.* do not describe generating a family tree identifying successive generations of the parent and offspring profiles. However, *Bedwell et al.* do describe generating a family tree identifying successive generations of the parent and offspring profiles (*see* §3.2, col. 1, para. 2, Fig. 3-2). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Bedwell et al.* to provide visual representation of generations of profiles so that the user does not have to have any prior understanding of the underlying technique (*see* Abstract).

Regarding claims 42, 75, and 110. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim. However, *Bentley et al.* do not describe generating a family tree identifying successive generations of the parent and offspring profiles; and displaying the parent profile, the offspring profile, and the family tree. *Bedwell et al.* do

describe generating a family tree identifying successive generations of the parent and offspring profiles; and displaying the parent profile, the offspring profile, and the family tree (*see* above). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Bedwell et al.* to provide visual representation of generations of profiles so that the user doesn't have to have any prior understanding of the underlying technique.

Regarding claim 108. (New) *Bentley et al.* describe a graphical user interface (*see* above) as claimed in the parent claim. *Bentley et al.* do not describe the display including a first window displaying at least one of the profiles and a second window displaying the grouping. *Bedwell et al.* do describe displaying at least one of the profiles and a second window displaying the grouping (*see* §2.3, col. 2, "A separate process is forked for each of the children allowing the user to continue the mating process while the rendering takes place. Furthermore, by separating the rendering of each surface into its own process we can take advantage of parallelism...", *Examiner assumes each process has a window and that a profile displayed in a first window can be displayed in a second window, in an evolved (e.g., as in MODULE 3: UNFRAGMENTED) form where no additional segments have been added to the grouping in the profile displayed in the first window.*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* and *Bedwell et al.* to provide a more compartmented display.

17. Claims 43, 76, and 111 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Rowland et al.*, "Evolutionary Co-operative Design Between Human and Computer: Implementation of 'The Genetic Sculpture Park'.", 2000.

Regarding claims 43, 76, and 111. (Previously Presented) *Bentley et al.* describe a genetic design method as claimed in the parent claim. *Bentley et al.* do not describe displaying at least one of the profiles as a three-dimensional image. However, *Rowland et al.* do describe displaying at least one of the profiles as a three-dimensional image (*see*, p. 76, col. 1, §2.1, Fig. 3). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Rowland et al.* to provide a 3-D visual representation of profiles in order to view a design from different angles.

Conclusion

18. Applicant's arguments filed August, 5, 2005 have been fully considered but they are not persuasive.

Applicant's argument with respect to the 35 USC § 101 rejection of claims 29-61 is not found persuasive as is asserts that the amendment to claim 29 to clarify that the claimed structure is "a physical structure" fails to consider that current computers can only *represent* a physical structure and that such a representation is necessarily abstract (i.e., disassociated from any

specific instance of a physical structure). To be statutory, something must be done with the representation that is tangible, concrete, or practical. This is not recited.

Applicant's argument with respect to the 35 USC § 112,1 rejection of claims 29-61 is not found persuasive as if follows from Applicant's argument with respect to the 35 USC § 101 rejection of claims 29-61.

19. Applicant's arguments filed August, 5, 2005 with respect to the 35 USC § 102 and 35 USC § 103 rejection of claims 29-61 are found persuasive, but are moot in view of the new ground(s) of rejection.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan H. Brown, Jr. whose telephone number is 571-272- 8632. The examiner can normally be reached on M-F 0830-1700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more

information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Knight
Supervisory Patent Examiner
Tech Center 2100

Nathan H. Brown, Jr.
October 25, 2005